Physical Violence Experienced and Witnessed by Siblings of Persons with Schizophrenia in Japan

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Abstract

Violence committed by patients with mental illness is mostly perpetuated against family members, not strangers. The present study aimed to clarify the rate of violence that is experienced and/or witnessed by siblings of patients with schizophrenia and factors related to sibling's experiencing and/or witnessing violence committed by patients. A self-administered survey was completed by family members of patients with schizophrenia, including siblings. The final sample consisted of 113 siblings. Of the 113 siblings, 52 (46.0%) had experienced and 56 (49.6%) had witnessed physical violence at some point. A logistic regression revealed that siblings tended to experience physical violence by patients with younger age of onset of the disorder. Witnessing physical violence was significantly related to being a female sibling, a male patient, younger age of patient, and younger age of onset of schizophrenia. Crisis intervention and respite services for female siblings in particular need to be developed in Japan.

Keywords: family caregiving, family violence, schizophrenia, severe mental illness, siblings

Introduction

Research on the rate of violence among patients with mental illness, particularly those with schizophrenia, has indicated that there is a higher risk of violence for those with mental illness than for the general population. (Corrigan & Watson, 2005; Fazel, Gulati, Linsell, Geddes, & Grann, 2009; Fleischman, Werbeloff, Yoffe, Davidson, & Weiser, 2014; Walsh, Buchanan, & Fahy, 2002) However, the proportion of violent crimes committed by patients with mental illness is very low, and of those who engage in violence, more than half direct violence toward family members, not strangers. (Angermeyer, 2000; Arboleda-Florez, Holley, & Crisanti, 1998; Desmarais et al., 2014; Imai, Hayashi, Shiina, Sakikawa, & Igarashi, 2014; Steadman et al., 1998) Authors of a recent review on the topic concluded that at least 40% of caregivers have experienced violence by a relative with severe mental illness (SMI) following the onset of the illness. (Labrum & Solomon, 2015)

Risk of violence increases at the onset of psychosis in patients with schizophrenia. (Fleischman et al., 2014) First-episode psychosis often occurs in late adolescence and greatly affects not only the patients, but also their adolescent siblings (Sin, Moone, Harris, Scully, & Wellman, 2012). The siblings may experience and/or witness violence by the patient. Siblings of adults with mental illness reported more psychological distress, less psychological well-being, less adaptive personality characteristics (Taylor, Greenberg, Seltzer, & Floyd, 2008), and a higher likelihood of meeting lifetime depressive episodes than siblings of controls

(Klaassen, Heins, Luteijn, van der Gaag, & van Beveren, 2013). Another study revealed that over half of siblings recognized that their sibling's mental illness created disruptions in their own life (Horwitz, 1994). Relationships between patients with mental illness and their siblings can last longer than ties to parents (Lukens & Thorning, 2011), as these likely continue upon the death of the parents. Consequently, siblings can offer significant relationships and assistance for patients once parents have gone or are too frail or sick to provide care. However, only one third of the siblings of patients with mental illness expected to assume primary caregiving responsibility, which is less than that of siblings of patients with mental retardation (60%) (Greenberg, Seltzer, Orsmond, & Krauss, 1999). Reducing sibling burden may contribute to better quality relationships with patients with mental illness. However, research about siblings of patients with mental illness is generally limited (Amaresha, Venkatasubramanian, & Muralidhar, 2014). Specifically, research about family violence has primarily focused on parents, but generally has lacked sufficient sample size to examine this issue among siblings (Labrum & Solomon, 2015; Matsuyama, Morita, & Ogai, 2013; Swan & Lavitt, 1988).

The present study aimed to clarify the rate of violence experienced and/or witnessed by the siblings of patients with schizophrenia and the factors related to experiencing and/or witnessing such violence. This study focused on patients with schizophrenia, as the majority of patients in inpatient settings in Japan are diagnosed with schizophrenia (almost 60%)

(Ministry of Health Labour and Welfare, 2014).

Methods

Participants

The present analysis is part of a larger study entitled, "Japanese Family Violence and Mental Illness" (Kageyama et al., 2015) . The objective of the larger study was to assess factors related to family violence among caregivers and siblings of individuals with mental illness. Eligible participants were family members from households belonging to a prefecture-level association of a national family group association. The prefecture-level association sample included 866 households from 27 affiliate family groups.

Based on the judgment of group leaders, questionnaires were distributed to 768 households. For each household, both parent caregivers had the opportunity to complete a questionnaire, while only one sibling could complete a questionnaire. Questionnaires were not provided to 118 households due to health conditions or family issues of the potential respondents. Of the sibling questionnaires that were returned, 123 were sufficiently complete and considered valid for study purposes.

Given that the present analysis focused on siblings of patients with schizophrenia, we excluded questionnaires returned by siblings of patients who had other diagnoses (n = 8) and

incomplete violence items (n = 2). Thus, the final sample size for the present analyses consisted of 113 siblings.

Instruments

All study data were collected from respondents who were siblings of patients with schizophrenia.

Physical Violence

Physical violence experienced and witnessed by siblings were the dependent variables. The frequency of directly experiencing and witnessing nine acts of physical violence was determined by respondents selecting one of the following categories: *never*, *1-4 times*, *5-99 times*, and *100 times or more*. These violent acts were divided into two categories "acts of violence" and "other aggressive acts," based on the categorization used in the MacArthur Violence Risk Assessment Study (MVRAS). (Monahan et al., 2001) The "acts of violence" were operationally defined as acts that resulted in physical injury or were likely to result in severe injury and were committed by using a weapon or choking. This category included five items: visit to a physician resulting from injury, knife injury, threatening with a knife, beating with a physical object, and choking. The term "other aggressive acts" was

operationally defined as violent acts that did not result in injury or were not likely to result in a severe injury and were committed without using a weapon or choking; these included four items: destroyed property, pushing, punching and kicking, and throwing an object.

Variables Related to Family Violence

Variables about patients were limited because most of the siblings lived separately from the patients and consequently, had little knowledge about the patients' current condition. The patients' characteristics included age, gender, and age of onset of the illness. Sibling characteristics included age, gender, birth order, other siblings or not, and number of years cohabitating with the patient in sibling's lifetime.

Statistical Analysis

The endorsement frequency of the nine items regarding physical violence was calculated, including the frequency of having experienced and/or witnessed "acts of violence" and "other aggressive acts" in their lifetime. If siblings experienced and/or witnessed "acts of violence" or "other aggressive acts," they were categorized into "any physical violence". Independent variables were compared for groups that endorsed never and ever of "any

physical violence" for both when the violence was experienced and witnessed. Independent sample *t*-tests and chi-square tests were used for continuous and categorical variables, respectively. Logistic regression with the ever and never physical violence outcomes as the dependent variable and all independent variables were examined to identify factors related to having experienced and witnessed physical violence. We tested for multicollinearity using the variance inflation factor (VIF) and confirming VIF < 2 among variables. All analyses were conducted using SAS version 9.4 (SAS, North Carolina, United Sates).

Ethical Considerations

The Research Ethics Committee of the Faculty of Medicine, the University of Tokyo approved the study (February 24, 2014; No. 10415). All participants were informed of the study's aim and that their participation was voluntary. Informed consent was implied through questionnaire completion and return. Contact information for agencies that could assist participants who required help pertaining to the experience of violence was provided.

Results

The demographic data related to the siblings is shown on Table 1. On average,

patients were 40.9 years old with 21.1 years since the onset of schizophrenia. Two thirds of the patients were male (66.4%) and one third was female (33.6%).

Over half of the siblings were female (57.7%) and their average age was 41.5 years old. Birth order was such that 28.3% of the siblings were older and 28.3% younger sisters, 23% of siblings were older brothers, and 20.4% of siblings were younger brothers. Almost two thirds of the respondents had only one sibling with schizophrenia. Almost half of respondents were married (53.1%) and had children (46.4%). Over 80% of respondents were not primary caregivers and 70% of them lived separately from the patients. Over 80% of respondents did not participate in family support group association meetings.

[Insert Table 1 about here]

Physical Violence Exposure

The frequencies of "acts of violence" and "other aggressive acts" are shown in Table 2. The number of sibling respondents who had experienced "acts of violence" and "other aggressive acts" in their lifetime was 21 (18.6%) and 50 (44.3%), respectively, while the number of siblings who had witnessed violence was 24 (21.2%) and 54 (47.8%), respectively. The number of siblings who had ever experienced "acts of violence" and/or "other aggressive acts" was 52 (46.0%) and the number of siblings who had ever witnessed "acts of

violence" and/or "other aggressive acts" was 56 (49.6%). Siblings who both experienced and witnessed "any physical violence" were 39 (34.5%) while 52 experienced and 56 witnessed any physical violence.

[Insert Table 2 about here]

Comparisons of Siblings With and Without Physical Violence Exposure

As displayed in Table 3, independent variables were compared between siblings who had and had not experienced/witnessed any physical violence in their lifetime using *t*-tests or chi-square tests.

Siblings who experienced violence had siblings with onset of schizophrenia at younger age. Siblings who witnessed violence were more likely to be younger and female, and had siblings who were also younger and had onset of schizophrenia at a younger age.

[Insert Table 3 about here]

Odds Ratio for Experiencing/Witnessing Physical Violence

Of the 8 independent variables, age of patients and age of siblings were highly correlated and had a VIF>5. Therefore, age of siblings was not included as an independent

variable. After confirming that VIFs were below 2.0, logistic regression with 7 independent variables was conducted (Table 4). Experience of physical violence was significantly related to the patients' younger age of onset (odds ratio [OR] = 0.91; 95% confidence interval [CI] [0.83, 0.99]; $p = 0.039$). Witnessing physical violence was significantly related to the patients being younger in age (OR = 0.95; 95% CI [0.91, 0.99]; $p = 0.028$), being male (OR = 0.24; 95% CI [0.09, 0.64]; $p = 0.05$), and having a sibling with a younger age of onset of his/her disorder (odds ratio [OR] = 0.91; 95% CI [0.83, 0.99]; $p = 0.045$), as well as siblings being female (OR = 3.89; 95% CI [1.54, 9.79]; $p = 0.04$).

[Insert Table 4 about here]

Discussion

Experiencing/Witnessing Physical Violence

Previous research indicated that physical violence towards family members by patients with serious mental illness was mainly directed towards mothers and not siblings (Estroff, Swanson, Lachicotte, Swartz, & Bolduc, 1998). However, of the 113 siblings in this study, approximately 20% experienced or witnessed "acts of violence" and almost half experienced or witnessed any physical violence in their lifetime. These findings suggest the need for supportive interventions to help resolve conflicts that may escalate to violent acts is

essential not only for parents but also for siblings in Japan.

Factors Related to Siblings Experiencing/Witnessing Physical Violence

In this study, siblings tended to experience physical violence by patients who had a younger age of onset of schizophrenia. Witnessing physical violence was significantly related to being female, having a male sibling with schizophrenia, being younger in age, and having a younger age of illness onset in the patient.

These findings are consistent with younger age being a risk factor for violence towards family members by patients with serious mental illness (Swan & Lavitt, 1988; Vaddadi, Gilleard, & Fryer, 2002). The younger age of onset was a risk factor for experiencing and witnessing physical violence by the siblings in this study, although a previous national survey of family groups in the U.S. indicated that the age of onset was not predictive of family violence among patients with mental illness (Swan & Lavitt, 1988). The earlier the onset, the more severe the outcomes of the illness (Immonen, Jääskeläinen, Korpela, & Miettunen, 2017). Therefore, patients with a younger age of onset may commit violence more times or with greater severity than those with an older age of onset. In addition, adolescent patients are likely to live with adolescent siblings. Depending on the living condition, siblings may experience and witness the violence when patients committed

the violent act in the home environment.

In the present study, female siblings tended to witness physical violence by patients. The current study did not examine who the targets of violence were that siblings witnessed. In general, compared to other family members, mothers experience more violence by patients.(Estroff et al., 1998). Japanese mother-daughter relationships have recently changed by becoming closer (Fujita & Okamoto, 2009) ; therefore, daughters tend to stay home with their mothers for a longer period of time, providing more opportunity to witness scenes of physical violence committed by patients.

Witnessing physical violence was more common if patients were male; however, this was not the situation for experiencing physical violence. In the general population, females commit far fewer violent crimes than males. However, among patients with SMI, the findings from general population studies may not apply. Although a study by Corrigan and Watson revealed that male patients commit serious violent acts more often than females (Corrigan & Watson, 2005), other studies have found no significant difference with regard to gender (Robbins, Monahan, & Silver, 2003), and still others have showed higher rates of minor violent acts committed by female patients (Desmarais et al., 2014; Monahan et al., 2001). Patients with schizophrenia, particularly females, are at increased risk for violent crimes compared to the general female population (Fleischman et al., 2014; Schanda et al., 2004). Therefore, siblings did not experience different levels of violence based on the gender of the

patients. However, siblings were more likely to witness physical violence by male than by female patients. Male patients may be physically stronger, such that their acts of violence may be more intense and consequently, frighten family members much more. Therefore, physical violence by male patients may tend to make a greater impression which may be more likely to be remembered.

Implications

The current study revealed that siblings were likely to experience and/or witness physical violence when the patients had earlier onset of schizophrenia. However, practitioners generally do not have the opportunity to meet patients' siblings. In Japan, there are few home visiting services, including when a family is in crisis. Therefore, almost 90% of family members insist on the necessity of crisis services to intervene as soon as the patient's condition deteriorates (Minna-Net, 2010). A representative from the largest self-help group for siblings of patients with mental illness asserts that early intervention into a crisis to prevent negative consequences to siblings is essential (Kamiya, 2017). The establishment of crisis intervention services is indispensable for preventing violence towards siblings, as well as other family members.

Female siblings were more likely to witness violence by the patients. According to

research in the area of domestic violence, children who witness violence display significantly poorer psychosocial outcomes (Kitzmann, Gaylord, Holt, & Kenny, 2003). Witnessing violence affects a person psychologically; therefore, practitioners require education and training to recognize the consequences on siblings of not only experiencing but also witnessing violence and to provide supports and counseling for siblings, in particular female siblings. Practitioners can also assist siblings with means to cope with these violent situations and the development of a plan to escape the home when violence happens. Younger siblings reported wanting some form of respite to give them time and space away from the tensions in the home environment (Sin et al., 2012). Availability of respite services for family members, including siblings, would be particularly helpful.

Research Limitations and Further Research

The current study has several limitations. First, the sample size was somewhat limited; however, the study sample was larger than the most studies about siblings who have a brother or sister with a mental illness. Second, the study was unable to include very much information related to the patients due to the fact that sibling respondents frequently did not live with the patient. Siblings were, on average, 40 years old and most of them were not yet primary caregivers. Since caregiving was not a requirement for participating in this study,

less than 20% of siblings were a primary caregiver to the patient. Furthermore, the study sample is likely more representative of siblings of patients with schizophrenia and the findings have greater applicability to this population.

Conclusion

Approximately 20% of siblings experienced or witnessed "acts of violence" and nearly half experienced or witnessed any physical violence in their lifetime. Siblings tended to experience physical violence by patients who had a younger age of onset of the disorder. Witnessing physical violence was significantly related to being female and younger, having a male sibling with schizophrenia, and having a younger age of illness onset.

Conflict of Interest

The authors declare that they haves no conflicts of interest.

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Table 1. Demographic Data of Siblings of Patients with Schizophrenia (*n* = 113)

		n (%) or Mean ± SD
Patients		
Age		40.9 ± 10.9
Gender	Male	75 (66.4)
	Female	38 (33.6)
Age of onset		21.1 ± 5.3
Siblings		
Socio-demographics		
Age		41.5 ± 11.7
Gender	Male	47 (42.3)
	Female	64 (57.7)
Order	Older brother	26 (23.0)
	Younger brother	23 (20.4)
	Older sister	32 (28.3)
	Younger sister	32 (28.3)
Other siblings	Only the participant	70 (62.0)
	Have other siblings	43 (38.1)
Marriage status	Married	60 (53.1)
	Not married	53 (46.9)
Child/children	With	51 (46.4)
	Without	59 (53.6)
Household income[a]	Less $20K US	17 (15.7)
	$20K-40K US	34 (31.5)
	$40K-60K US	31 (28.7)
	Over $60K US	26 (24.1)
As a caregiver		
Primary caregiver	Yes	20 (18.4)
	Not	89 (81.7)
Cohabitation with the patient	Yes	32 (28.8)
	No	79 (71.2)
Years cohabitated		26.3 ± 8.5
Family groups	Participated	17 (15.7)
	Not participated	91 (84.3)

Note: [a] Conversion 100 Yen to $1 US

Table 2. Violence Experienced/Witnessed by Siblings of Patients with Schizophrenia Over the Lifetime (*n* = 113)

		Ever experienced	Ever witnessed
Number of item or category		*n* (%)	*n* (%)
1	Visited physician for injury	4 (3.5)	n.a.
2	Injured with knife	2 (1.8)	2 (1.8)
3	Threatening with knife	10 (8.9)	16 (14.2)
4	Beating with a physical object	12 (10.6)	11 (9.7)
5	Choking	4 (3.5)	8 (7.1)
Acts of violence (1–5)		21 (18.6) (≥1 time)	24 (21.2) (≥1 time)
6	Destroyed property	40 (35.4)	48 (42.5)
7	Pushing	24 (21.2)	29 (25.7)
8	Punching and kicking	29 (25.7)	29 (25.7)
9	Throwing an object	23 (20.4)	31 (27.4)
Other aggressive acts (6–9)		50 (44.3) (≥1 time)	54 (47.8) (≥1 time)
Any physical violence (1-9)		52 (46.0) (≥1 time)	56 (49.6) (≥1 time)

Table 3. Comparisons Between Siblings Who Have and Have not Experienced/Witnessed Physical Violence

		Experienced any physical violence			Witnessed any physical violence		
		Never	Ever		Never	Ever	
		n = 61	*n* = 52		*n* = 57	*n* = 56	
		n (%) or Mean ± SD		*p*	*n* (%) or Mean ± SD		*p*
Patient factors							
Age		40.8 ± 12.0	41.1 ± 9.5	0.894	43.2 ± 11.2	38.7 ± 10.1	0.027*
Gender	Male	37 (60.7)	38 (73.1)	0.164	33 (57.9)	42 (75.0)	0.054
	Female	24 (39.3)	14 (26.9)		24 (42.1)	14 (25.0)	
Age of onset		22.1 ± 5.2	19.9 ± 5.2	0.030*	22.4 ± 5.6	19.8 ± 4.6	0.009*
Sibling factors							
Age		41.2 ± 12.7	41.8 ± 10.4	0.786	44.2 ± 12.5	38.8 ± 10.2	0.014*
Gender	Male	28 (47.5)	19 (36.5)	0.245	30 (54.6)	17 (30.4)	0.009*
	Female	31 (52.5)	33 (63.5)		25 (45.5)	39 (69.6)	
Birth order	Younger than the patient	28 (45.9)	27 (51.9)	0.523	24 (42.1)	31 (55.4)	0.159
	Older than the patient	33 (54.1)	25 (48.1)		33 (57.9)	25 (44.6)	
Other siblings	Only the participant	35 (57.4)	35 (67.3)	0.279	34 (59.7)	36 (64.3)	0.612
	Have other siblings	26 (42.6)	17 (32.7)		23 (40.4)	20 (35.7)	
Cohabitation	Yes	18 (30.5)	14 (26.9)	0.677	15 (26.8)	17 (30.9)	0.632
with the patient	No	41 (69.5)	38 (73.1)		41 (73.2)	38 (69.1)	
Years cohabitated		25.5 ± 8.1	27.2 ± 8.9	0.301	26.6 ± 9.0	26.1 ± 8.1	0.752

Significance levels: *t*-test or chi-square test, *$p < 0.05$.

Table 4. Odds Ratios for Experiencing/Witnessing Physical Violence

		Experienced any physical violence		Witnessed any physical violence	
		OR (95% CI)	*p*	OR (95% CI)	*p*
Patient factors					
Age	(1-increment)	0.99 [0.96, 1.04]	0.914	0.95 [0.91, 0.99]	0.028*
Gender	Male	Reference		Reference	
	Female	0.44 [0.18, 1.08]	0.071	0.24 [0.09, 0.64]	0.005*
Age of onset	(1-increment)	0.91 [0.83, 0.99]	0.039*	0.91 [0.83, 0.99]	0.045*
Sibling factors					
Gender	Male	Reference		Reference	
	Female	1.48 [0.64, 3.42]	0.357	3.89 [1.54, 9.79]	0.004*
Order	Younger than the patient	1.66 [0.72, 3.81]	0.235	2.29 [0.92, 5.72]	0.077
	Older than the patient	Reference		Reference	
Other siblings	Only the participant	Reference		Reference	
	Have other siblings	0.66 [0.28, 1.57]	0.352	1.04 [0.41, 2.63]	0.939
Years cohabitated	(1-increment)	1.04 [0.98, 1.09]	0.170	1.02 [0.97, 1.08]	0.412

Significance levels: logistic regression, *$p < 0.05$.